Ten Year Conservation Program Plan

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Coal Creek Utility District
Highline Water District
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King County Water District No. 85
King County Water District No. 90
King County Water District No. 119
King County Water District No. 125
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Northshore Utility District
Olympic View Water & Sewer District
Seattle Public Utilities
Shoreline Water District
Skyway Water & Sewer District
Soos Creek Water & Sewer District
Woodinville Water District

TEN YEAR CONSERVATION PROGRAM PLAN

Water conservation (Conservation) is integral to how Seattle Public Utilities (SPU) and its purveyor partners' plan to meet future water demands and fulfill the role of environmental steward. Conservation is an economically and environmentally responsible way to accommodate competing demands for drinking water to meet long-term population growth and at the same time protect instream flows needed for fish. As a proven water resource, conservation has demonstrated reliable savings that are expected to continue over the next 20 years.

The 2001 Water System Plan Update (WSP) established a vision for conservation in the SPU regional service area that includes rates, codes, system reductions and programmatic conservation working together to achieve significant savings. The WSP outlined how codes, rates and system efficiencies will be implemented to generate expected savings. It also affirmed the 1% Conservation Program (1% Program) as the approach to programmatic conservation in the SPU regional service area. The 1% Program is based on direction from the Seattle Mayor and City Council following completion of the Conservation Potential Assessment by SPU in 1998. It was approved as a regional program by purveyor partners in 2000. While the WSP identified the savings goal and direction for the 1% Program, it did not specify how the program savings would be achieved.

The 1% Program has served as a basis for discussion with stakeholders on various supply and conservation issues, which resulted in several other conservation commitments. The purpose of this plan is to describe how SPU intends to meet its various conservation commitments through 2010, and more generally until 2020. Most of the Plan applies to both retail and wholesale parts of the regional service area, but clarifies where additional commitments have been made in the retail service area. This plan is a compilation of thinking on what strategies would be used to achieve programmatic conservation savings through the 1% Program as well as how other conservation commitments will be met. The plan may evolve over time as program evaluation leads to refinement in strategies or timing due to changes in customer preferences and advances in technology. Nonetheless, this plan serves as a general blueprint for the future, showing the overall direction of conservation in the SPU regional service area.

I. THE ROLE OF CONSERVATION

While the Puget Sound region appears to have abundant water, the quantity and seasonal nature of our rain does not coincide with the use pattern. Additionally, growth pressures and environmental constraints have put significant burdens on the available supplies causing them to be limited. The City of Seattle is committed to an integrated strategy for water supply that includes maximizing efficiency of our existing water resources while evaluating new sources of supply that can be developed in an environmentally sensitive manner. Water conservation is a key component of that strategy.

I.A. The Relationship of Conservation to Regional Water Management

Reliance on any one water supply option to meet future demand is increasingly risky. To increase the level of water supply certainty, Seattle has adopted a diverse portfolio of options that includes water conservation, reuse, system efficiencies, and new resources. These supply options are planned and frequently exercised simultaneously. By planning and mobilizing several options at a time, Seattle and its utility partners intend to meet the projected needs of the regional service area.

In an ideal world, development of these supply options would be prioritized and sequenced just ahead of when they are needed. In reality, sequencing and implementation is impaired by delays and restrictions related to regulatory, environmental, jurisdictional and financial reasons.

Interrelationships form around many of these supply-planning strategies, such that one can't be done in isolation or in exclusion of the others. For example, regulators often will not permit a new source of supply unless the utility has completed significant water conservation measures and tightened system operations.

The degree to which conservation's role fits into a water supply planning strategy depends on the support and confidence decision-makers have in these programs for producing and maintaining long-term water savings. Seattle's successes demonstrate that long-term conservation can be a reliable way of meeting long-term water demands. Successful selection and implementation of conservation measures requires the integration of financial planning, system reliability, customer acceptance, and proper packaging and sequencing of the measures to be taken.

I.B. Historic Success

Annual average water consumption has dropped from 170 (mgd) in 1990 to below 150 mgd today. Consumption today is below what it was in 1980, despite the fact that the population served has grown by more than 20% since that time. Current water demand in the SPU service area is estimated to be more than 30 mgd less than projected without conservation. By encouraging sustainable improvements in resource efficiency without negative impacts on lifestyles or the economy, water consumption per capita has fallen by over 20% in the SPU service area since 1990. This historic success, and existing conservation infrastructure, forms a strong foundation for meeting our future long-term conservation commitments.

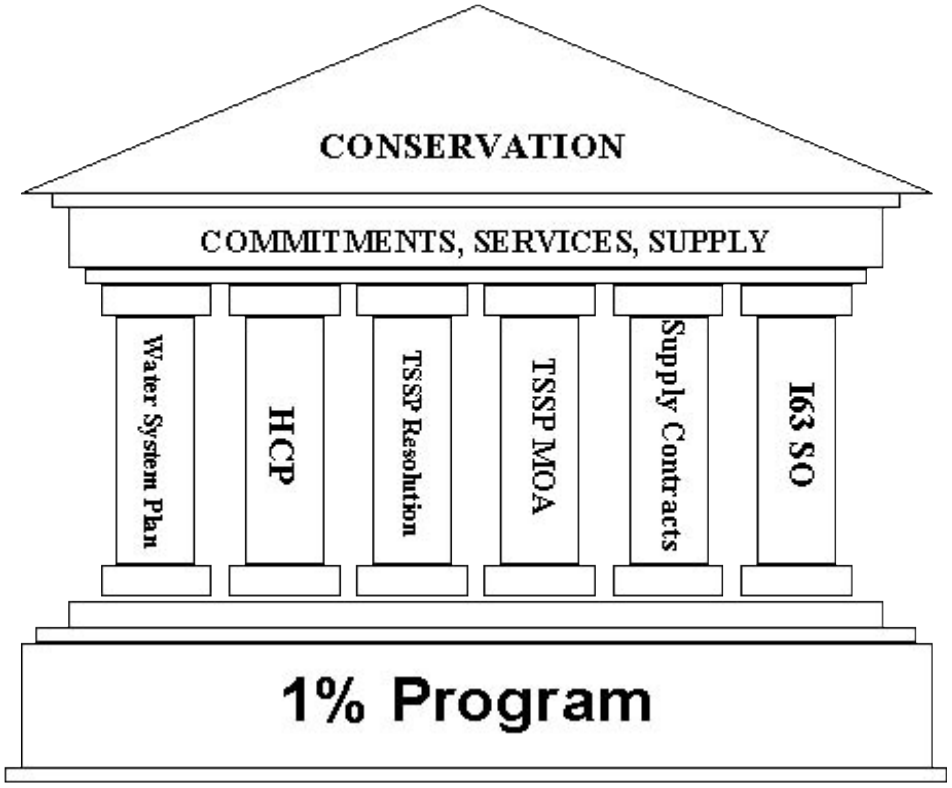
II. COMMITMENTS TO CONSERVATION

In the past two years, SPU has made commitments to conservation that have been negotiated with key stakeholders as part of several agreements, resolutions and ordinances. These obligations help to shape conservation program implementation over the next decade and are spelled out in six documents:

- 2001 Water System Plan Update (WSP)
- Cedar River Watershed Habitat Conservation Plan (HCP)
- Tacoma Second Supply Project (TSSP) Resolution
- Memorandum of Agreement between the TSSP partners and the Washington State Departments of Health (DOH) and Ecology (DOE)
- New wholesale supply contracts
- Initiative 63 Settlement Ordinance (I-63 SO)

Each of these commitments builds on the 1% Program, differing mostly in who is involved and the extent of water savings over time. In effect, each conservation commitment affirms (HCP, Water System Plan, New Supply Contracts), refines (TSSP Partners, DOH, and DOE Memorandum of Agreement), and/or expands the 1% Program (TSSP Resolution, I-63 SO). Some of these obligate SPU to more rigorous implementation of programs than was originally intended in the 1% Program. These commitments establish the framework for conservation that is being implement by SPU and its partners. Exhibit 1 depicts how these commitments, along with the 1% Program, shape SPU's overall conservation effort.

Exhibit 1



II.A. Seattle's 1% Conservation Program

The City created the 1% Program in 1999 and expanded it to include purveyor participation in 2000. It was based on conservation measures identified in the 1998 Conservation Potential Assessment (CPA) that were cost effective (i.e., less than or equal to Seattle's avoided cost of new supply). These measures were incorporated into the 1% Program that was designed to reduce personal and business water consumption in the Seattle regional service area by 1% each year through 2010. This savings goal roughly corresponds to the forecasted growth in water demand over the same time period. Achieving this goal will hold water demand in the SPU service area at the end of 2010 to approximately the same level as in 1999.

The 1% goal was selected to achieve a number of objectives, including:

Keeping up with demand. If each person and business in the region became 10% more water efficient over the next ten years, the region would save approximately 18 million gallons of drinking water per day. This amount of water will meet the needs of 130,000 people or approximately the amount of projected growth within the Seattle service region over the next ten years.

Resource stewardship and endangered species protection. Leveling out the impact of growth on the region's water supplies means there is no need for additional river diversions, preserving more water for salmon, other aquatic life, recreation, water quality, and other important purposes. The federal Endangered Species Act (ESA) listing of the Chinook salmon has added emphasis to these goals for governmental agencies whose operations may have impacts on the Chinook.

Cost effective extension of existing supply. The measures identified in the 1% Program are less costly on a per unit basis than developing traditional new sources of water supply. This benefits customers by keeping rates lower than they would be if a new source of supply were added to the system to meet demand in lieu of reducing demand through conservation.

Customer service. Conservation provides a direct benefit to participating customers by giving them more control over their individual water bills. Participation in conservation measures has other benefits including lower wastewater, electric, and gas utility bills, convenience, labor savings, and in some cases like clothes washing, improved performance.

Reliability. Developing traditional new water supply sources have lengthy regulatory approval processes. Conservation programs can be implemented quickly by utilities without permits, approvals, or revisions to comprehensive plans. Furthermore, because these programmatic savings are largely technology based, savings can be obtained with certainty.

II.A.1. Conservation Potential Assessment

SPU's Conservation Potential Assessment (CPA) provides an expansive toolbox of conservation measures that can produce reliable, long-term water savings. To provide a rigorous analysis of the cost, volume, and reliability of conservation opportunities available within Seattle's wholesale and direct service areas through 2020, SPU completed the CPA in 1998. Over seventy customer-based water savings measures were assessed. Conservation measures were defined as changes in water-using hardware or behaviors resulting in reduced water consumption. None that would result in a loss of service or satisfaction for the customer were identified or analyzed. For example, Water shortage actions such as irrigation bans that would reduce customer service were not considered.

The CPA was the result of a substantial review of literature and applied research into customer water use habits and conservation measures. A detailed, accurate regional water use and demographics baseline was developed that could be easily updated for changing conditions. The information used to prepare the CPA was the latest and best available for residential and commercial water use.

The CPA found that substantial water savings from conservation programs, up to 31 million gallons per day (mgd), could be achieved over the next 20 years. The CPA savings estimates are considered to be conservative. The CPA did not model the benefits of improved future technology, which will likely increase the potential savings while reducing the cost. In addition, the CPA did not calculate non-water benefits such as energy savings, process control improvements, and reduced sewer costs that would likely make the conservation measures more cost-effective to implement.

II.A.2 Customer Perspective

Over the years, SPU and its wholesale customers have systematically conducted quantitative and qualitative market research with their residential customers to track various indicators and assess program acceptance and success. The most recent results show increasing customer understanding of the importance of conservation and their ability to help solve water supply problems. Ninety-four percent of the customers surveyed believed it was important for their household to actively conserve. Eighty-eight percent of customers believed it was important for their water utility to provide conservation programs.

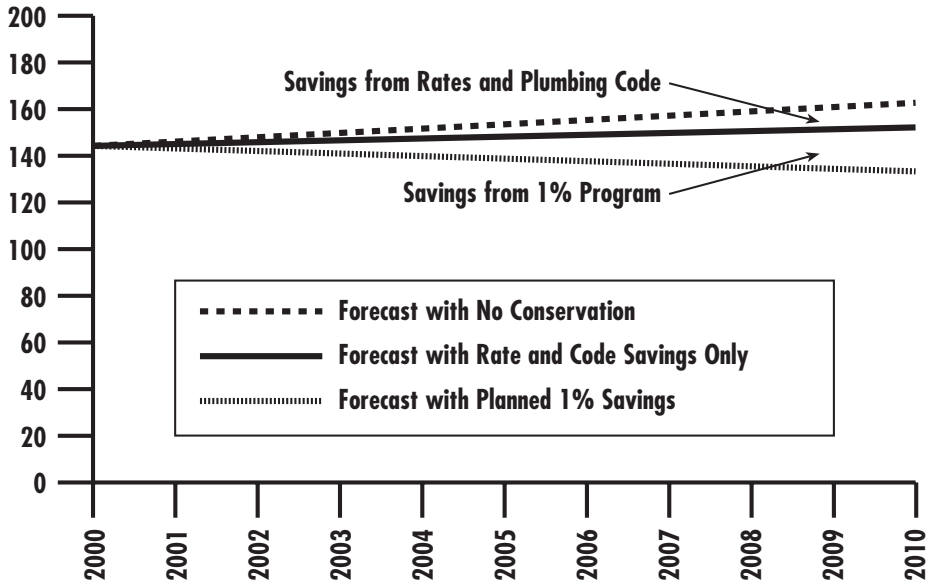
Overall, three-quarters of customers felt they could save more water in their households, and their projections of how much they could save were just slightly less than in earlier surveys. Thus, even though they have reduced use (58% reporting they have reduced their use in the past year), they believed they could save more. Protecting the environment continues to be rated as the strongest component in customer's motivation to save water, although saving money was also high on their list.[1]

[1] SPU and Purveyor 2001 Water Conservation Survey, prepared by: Dethman & Tangora Llc. The survey was fielded in November 2001. The draft report was written January 2002.

II.A.3. Conservation Effects on Forecasted Demand through 2010

Exhibit 2 shows forecasted water demand in SPU's regional service area (retail and wholesale) with no conservation, with conservation savings from water rates and plumbing codes only, and with savings from the 1% Program. Savings from rates and plumbing codes are expected to reach 11 million gallons per day (mgd) by 2010. The 1% Program is expected to achieve an additional 18 mgd by 2010. While this plan focuses on 1% Program efforts, the savings from rates and codes are also important, although they would be achieved without programmatic conservation efforts.

Exhibit 2: Water Demand and Conservation



II.B. 2001 Water System Plan Update

The WSP identifies the 1% Conservation Program as SPU's adopted water conservation program. Savings from the 1% Program were incorporated in the demand forecast contained in the WSP. The WSP was approved by City Council in December 2001. The Plan was also approved by DOH who requires SPU to implement the plan and amend it if significant revisions are made. The plan cites the Conservation Potential Assessment and the 1996 Long-Range Conservation Plan as the basis for the program.

II.C. Habitat Conservation Plan

In 1999, SPU finalized its Habitat Conservation Plan for the Cedar River Watershed. One commitment in this agreement (City of Seattle Resolution 30091) was that SPU implement the 1% Program based on the 1998 CPA. In addition, SPU committed to limited funding for conservation promotion efforts related to fish protection.

II.D. Tacoma Second Supply Project Resolution

In 2000, the Mayor and City Council included conservation commitments in City of Seattle Resolution No. 30259, which was passed in conjunction with the ordinance authorizing SPU to enter into the Tacoma Second Supply Project agreement (TSSP). The resolution:

- Directed SPU to conduct conservation efforts along with the TSSP partners that would save 10% over ten years in the combined service areas of the TSSP partners.
- Directed SPU to include the 1% Program through 2010 and cost-effective conservation through 2020 in its new wholesale supply contract negotiations.
- Directed SPU to develop a work plan for implementing measures beyond the CPA definition of cost-effective to include the cost of the TSSP.
- Directed SPU to work with the Central Puget Sound Water Suppliers' Forum to create a regional water conservation entity.

Since that resolution was adopted, Tacoma and Seattle were not able to resolve certain terms of the agreement that are fundamental to Seattle. As a result, Tacoma and the other partners chose to move forward with the project without Seattle's participation. Nonetheless, SPU will continue to work on fulfilling the relevant commitments identified in the resolution.

II.E. TSSP Memorandum of Agreement

The TSSP resolution also committed SPU to complete a Memorandum of Agreement between the TSSP parties, DOH and DOE that was already being negotiated for the purpose of extending Tacoma's second diversion water right. This agreement, signed in October 2001, included water conservation and planning elements that:

- Encompasses the region covered by the five TSSP partners
- Commits the parties to an aggregate 10% demand reduction by 2010
- Defines regular reporting and evaluation periods.
- Establishes a baseline for conservation.

Since the TSSP participation has changed, the basic precept of the commitments made in the MOA no longer apply. SPU is discussing this with DOH and DOE to determine what responsibility remains for fulfillment of the MOA.

II.F. I-63 Settlement Ordinance

In October, 2001, the Mayor and City Council adopted City of Seattle Ordinance No. 120532, otherwise known as I-63 Settlement Ordinance (I-63 SO), as a settlement agreement to a citizen-sponsored initiative. The ordinance commits SPU to:

- Increase conservation savings in Seattle's retail service by 3 mgd more than the 1% Program goal (9 mgd) by 2010 for a total of 12 mgd by 2010
- Increase funding for conservation in low-income housing
- Review and possibly restructure rates for commercial customers
- Set aside specified quantities of water for fish

Exhibit 3 summarizes and compares the commitments made in these different resolutions and ordinances.

EXHIBIT 3: SUMMARY OF CONSERVATION COMMITMENTS

Document/ Year	Conservation Commitment to 2010		Conservation Commitment after 2010		Other Conservation Commitments
	Goal	Area Involved	Goal	Area Involved	
2001 Water System Update	1% per year	Retail and wholesale	All cost-effective conservation programs identified in CPA.	Retail	None
Habitat Conservation Plan (1999)	1% per year	Retail and wholesale areas	None	None	Funding of conservation messages related to fish
TSSP Resolution (2000)2	10% over 10 years	Retail and in new wholesale contracts.	All cost-effective conservation identified in CPA.	Retail and in new wholesale contracts.	1. Participate in Central Puget Sound Water Suppliers Forum Conservation Work Group 2. Develop Conservation Entity 3. Update CPA every 5 years
	Consider conservation beyond cost-effective as defined in CPA	Retail service area only			
TSSP MOA (2001)2	10% over 10 years	Combined savings with other utilities party to the agreement. All of Seattle's and Tacoma's service area	None	None	1. Work with Central Puget Sound Water Suppliers Forum on conservation measures and evaluation
I-63 SO (2001)	Additional 3 mgd	Retail only	All cost-effective conservation	Retail only	1. Implement low-income housing retrofit program 2. Develop conservation incentive rates for commercial customers 3. Update CPA every 4 years

[2] Since the resolution and MOA were adopted, the TSSP project agreement no longer includes Seattle. Nonetheless, SPU will continue to work on fulfilling most of the commitments identified in those documents.

III. IMPLEMENTATION

Conservation programs, whether based on technological fixes or behavioral changes, evolve as new information emerges, regulations are adopted, and programs are evaluated. For that reason, the programs and timelines described here portray the delivery strategy based on what we know today. The specifics of this plan could change as information, circumstances, technology, and customer preference change. While the details of the plan may evolve, conservation commitments will continue to be met and programmatic conservation will continue to be prominent in how SPU meets future water demand.

The 1% Program goal is to achieve 18 mgd savings by 2010. These savings will be obtained from three types of customer-based water uses: domestic, landscape and commercial/industrial/institutional processes. Within the 2010 timeframe, there are more than 25 measures that are expected to produce the 18 mgd from customer-based program measures. This does not include savings from I-63 SO provisions.

After 2010, the official SPU forecast includes savings from implementing the remaining CPA cost-effective programs within the retail portion of the SPU service area. This would involve continuing programs implemented before 2010, and adding new programs. Actual conservation goals after 2010, however, will be determined in the future for the entire service area, serving both retail and wholesale customers.

III.A. Purveyor Involvement

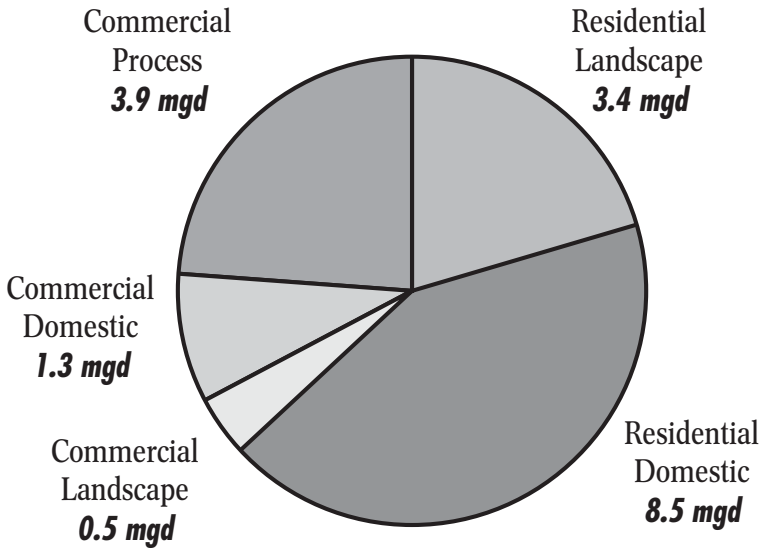
Twenty-six of SPU's wholesale customers, or purveyors, were involved in the preparation of the CPA and have been intensively involved in the ramp-up of 1% Program implementation. Purveyors supported the Conservation element of the 2001 WSP Update, which identified the 1% Program as the approach to reducing demand over the next ten years.

Purveyors are, and continue to be, active partners with SPU in program planning, design, implementation, and evaluation of the 1% Program. The Purveyor Conservation Committee meets monthly to discuss conservation progress and issues. Six Working Groups have been formed within the Conservation Committee that provide in-depth input into strategy development and implementation for the areas of Youth Education, Marketing, Residential Indoor, Residential Landscape, Commercial/ Industrial/ Institutional and overall 1% Program evaluation. The working groups officially formed in 2000, although some were active years before, and plan to remain active throughout the lifetime of the program. Each working group has been developing program delivery strategies for 1% Program implementation across all customer sectors, as well as program tracking and evaluation.

III.B. 1% Program Measures & Strategies

Achieving the goals of the 1% Program requires significant conservation savings across all customer sectors and end uses. Exhibit 4 describes each customer sector's contribution to the total conservation goal. Implementation is proceeding through the development of a series of program delivery strategies that focus on each of the different customer sectors and types of use: residential domestic, residential landscape, commercial domestic, commercial landscape, commercial process, youth education, and overall marketing. Each strategy includes program activities specifically designed to reach a particular type of customer. The different strategies are woven together by an overall marketing effort that promotes a conservation ethic and establishes an identity for the entire 1% Program. Detailed program delivery strategies have been developed in separate reports.

Exhibit 4: Savings by Program Area - MGD



Achieving the first 18 mgd of the 1% Program by 2010, has been estimated to cost $54 million. Spending is projected to increase gradually from 2002 through 2010 to build the 18 mgd savings. This level of investment is necessary to produce the gradual increase in savings associated with customer lifestyle changes and timing of hardware retrofits. Roughly $6 million has been spent for the combined years of 2000 and 2001.

Exhibit 5 summarizes total savings and costs over the ten-year period from 2001 to 2010 for 1% Program implementation in each of the five customer sectors.

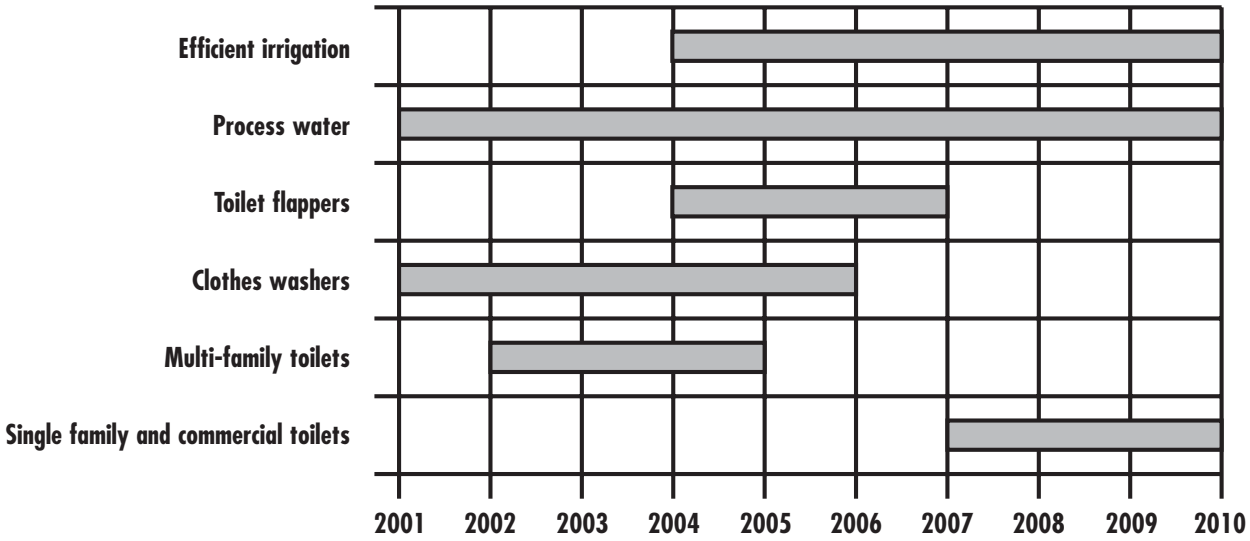
Exhibit 5: 1% Program Implementation Summary of Savings and Costs 2001-2010

Customer Sector	Examples of Measures	Savings (mgd)	Cost
Residential Domestic	Toilet, faucet, and showerhead retrofits; efficient clothes washers	8.5	$22M
Residential Landscape	Irrigation systems and scheduling efficiencies; natural lawns and gardens	3.4	$14M
Commercial Process	Air cooling; process water and cooling tower efficiencies; laundry wash water recycling	3.9	$14M
Commercial Domestic	Low flush toilets and urinals; waterless urinals; swimming pool & hot tub efficiencies	1.3	$2M
Commercial Landscape	Weather-based irrigation; Irrigation system and scheduling efficiencies; soil moisture sensors	0.5	$2M
Total	Implementation of 70 cost-effective conservation measures	**18 mgd**	**$54M**

mgd= million gallons a day

A schedule for reaching these conservation goals has also been developed. While both the programs and their timing could change over time, Exhibit 6 shows the approximate schedule for implementing major conservation measures through 2010.

Exhibit 6: Implementation Schedule for Major Conservation Measures



III.B.1. Residential Landscape

Program emphasis in the near-term will encourage savings through an integrated multi-resource conservation education effort that combines water, waste reduction and stormwater pollution prevention. This approach leverages partnerships with, and funding resources from, other utilities, agencies, and the landscape industry while building natural lawn and garden themes.

The Natural Lawn and Garden concept is the cornerstone of the 1% Program's approach to residential landscape savings. Six printed guides cover the full range of SPU's resource protection priorities for landscaping that includes building healthy soils, choosing the right plants and watering smart. They are available and being distributed to customers in the regional service area.

A convincing, repetitive long-term customer message over many years is needed to gradually change residential practices and the attitudes driving those practices. Most customers tend to remodel and change their landscapes slowly. Furthermore, market transformation to a new landscaping ethic is a long-term educational effort, where short-term savings are more difficult to achieve and small increments of long-term savings are built over time.

From 2002 to 2004 program development efforts will focus on selected landscape watering devices that will be connected with landscape behavior messages. Opportunities to encourage water efficient landscapes in new construction are being developed. In 2002 and 2003, incentive programs will include soaker hoses, mulch mowers, and compost. In addition, extensive field application projects will help identify the best irrigation devices, landscape practices, and delivery strategies for major incentive programs in 2004 and beyond.

Residential landscape savings will come from customers adopting numerous efficiency measures. These savings will be achieved if 30% of the customers who irrigate in the Seattle regional service area improve irrigation scheduling, 30% of customers with automatic irrigation systems improve the performance of those systems, and 50% install automatic rain shut-off devices. Other measures implemented would need to have similar adoption rates to achieve desired savings.

III.B.2. Residential Domestic

For the near term, program emphasis in this sector will be in washing machine and toilet upgrades. The WashWise residential laundry program will use progressively scaled-back incentives and increased promotion to convince as many customers as possible to purchase a more efficient machine prior to the scheduled change of federal efficiency codes in 2004 and 2007. Capture of these early years of savings will result in higher overall value per dollar invested since customers tend to have limited purchasing opportunities. The average customer keeps their machine for 14 years.

The multi-family residential customer sector will emphasize toilet, showerhead and faucet aerator replacements. Multi-family replacements have large water savings potential per toilet replaced and the slowest natural replacement rates. Toilet replacements are promoted by offering financial incentives to customers. Due to rapid changes in how multi-family owners bill tenants for water use by sub-metering or utility cost allocation systems, motivation for multi-family toilet replacement by property owners is steadily declining. Accelerating multi-family toilet replacement thus represents a major opportunity for water savings.

A financial incentive program for low-income multi-family housing in the region is being conducted, with a higher financial incentive than for other multifamily customers in order to achieve participation targets. Initial emphasis will be placed on public housing authorities and large non-profit low-income housing providers.

For the single-family sector, the toilet program will consist of an active education and information effort, with the possibility of a financial incentives program in later years. Because of the overwhelming success of the 2001 toilet round-up events, some limited single family toilet rebate promotions may be included in the early years depending on funding availability.

Replacement toilet flappers (devices that close the flush valve after the tank has emptied) will be promoted to customers who have potential leaks and are not yet ready to make a new toilet investment.

This program is timed before 2007 to avoid overlap and duplication with single family toilet incentives, and to capture the lowest cost savings first. An extensive education and information program will focus on both the how and why of conservation, using broadcast and targeted marketing, youth education, and partnerships with other agencies and organizations.

Achieving the savings goals for these residential programs requires that 60% of customers with high flush toilets will install ultra-low flush toilets, 30% will install water efficient clothes washers, and 30% will decrease unnecessary faucet use. Other measures implemented would need to have similar adoption rates to achieve desired savings.

III.B.3. Commercial Landscape

To reduce landscape water use for this sector, there will be continuing emphasis on site assessments and irrigation audits, and incentives for upgrading existing irrigation systems. Work in this sector will target site owners, facility managers and landscape and irrigation industry professionals. No-cost technical assistance will be offered to customers that help them make changes in irrigation system operation and landscape management. Professional landscape and irrigation auditors will visit sites, check an irrigation system's performance and plant location, and make recommendations for improving efficiency. Opportunities will be pursued related to new irrigation technologies and applications, development of model regulations, and field studies to improve new construction and new irrigation system water and resource efficiency. In later years, or sooner as opportunities arise, emphasis will be on development of efficiency standards to regulate new systems.

Education and training will emphasize natural lawn and garden themes. A network of partnerships with the landscaping and irrigation industry will be built to promote efficient irrigation. Training workshops will target facilities managers to increase their knowledge about the costs and benefits of efficiently managed systems and how to qualify for financial incentives for irrigation upgrades. In 2002, the Business and Industry Resource Venture, an integrated resource conservation partnership with the Greater Seattle Chamber of Commerce, is helping to recruit business participants.

Commercial landscape savings will come from customers adopting numerous efficiency measures. These savings will be achieved if 30% of the customers who irrigate in the Seattle regional service area improve irrigation scheduling, 30% of customers with automatic irrigation systems improve the performance of those systems, and 50% install weather-based irrigation controllers. Other measures implemented would need to have similar adoption rates to achieve desired savings.

III.B.4. Commercial Domestic

In the area of commercial domestic use, restroom upgrades to more efficient fixtures will be emphasized through information outreach in early years and through incentives in later years. In years 2004-2006, a replacement flapper distribution program will complement the information and education effort. Whenever possible, a strong effort will be made to integrate domestic fixture upgrades for customers who are already participating in commercial cooling and process water projects. This helps avoid repetition of multiple program measures and staff contacts over time with the same customer.

Achieving the savings goals for these commercial programs requires that 60% of customers with high flush toilets and urinals will install ultra-low flush fixtures, along with other measures implemented with similar adoption rates.

III.B.5. Commercial Process

In the area of commercial cooling and process water use, efficiency measures will be emphasized that are relatively easy to implement, and where the customer is indicating motivation to invest resources. Less motivated customers, who, for a variety of reasons do not see water conservation as a priority, will be the focus of more intensive marketing in the years 2007-2010. It is expected that in later years, more marketing will be needed to obtain the same annual level of participation and savings. Future water and sewer rates will also be an important factor. Program marketing in the early years will emphasize standard business perspectives like return on investment, and public relations (i.e. being good environmental stewards).

During the first five years, commercial conservation efforts will concentrate on conversion of inefficient water use practices known to be widespread in the commercial sector. Examples include ice machine cooling conversion, elimination of other pass-through cooling applications, cooling tower upgrades, process water used for cleaning and washing, commercial clothes washers, and water-using medical equipment upgrades. Partnerships with other agencies, such as school districts, governments, and energy and wastewater utilities will continue to leverage both program dollars and multiple program benefits.

In order to achieve the savings goals in the commercial sector, 45% of the largest customers with cooling towers will have to improve tower performance by 2010. Thirty percent of the largest customers with process water use will have to recycle the water used in those systems. In addition, 55% of commercial customers with water-cooled equipment will have to replace that equipment with air-cooled equipment. Other measures with similar adoption rates would also be implemented to reach savings goals in this area.

III.B.6. Overall Marketing and Youth Education

Underlying the success of implementing the conservation measures of the 1% Program is the Overall Marketing Strategy and Youth Education Program. Marketing a conservation ethic forms the foundation for behavior changes that result in real savings. The aim of these efforts is to maintain increasingly strong, positive customer attitudes toward conservation and to strengthen the belief that our customers can affect whether there is enough water to meet future water needs. Over time, messages will transition from awareness to action messages that respond to evolving trends in customer preferences. This messaging will also be designed to maintain conservation behaviors as they are adopted over time. Repetition of messages, and building customer awareness of the need for, and how-to's of conservation is key to long-term sustained program success. Customer reaction following the 2001 drought may also require addressing the relationship between utility rates and conservation.

Youth education plays an important role in creating and sustaining future savings. Annual investments in youth education pay long term dividends in the attitudes of the future adult population. These programs also reach parents of those students, which generates more immediate potential savings.

III.C. 1% Program Implementation Schedule and Budget

Ten implementation criteria drive the 1% Program plan and schedule:

1) Balance the level of investment and savings potential from specific efficiency measures analyzed in the Conservation Potential Assessment (CPA) over the ten year life of the program.
2) Produce a dependable stream of water savings at a relatively constant cost to reduce utility revenue fluctuations and minimize rate and budget impacts.
3) Incorporate realistic staffing limits for program managers, consultants, purveyor and agency partners, and other utility staff.
4) Reduce the impact of customers who would have participated without an incentive by appropriate program sequencing.
5) Take advantage of emerging codes and regulations by following a progressive strategy of information, education, incentives, and limited regulation.
6) Sequence measures that provide the greatest savings at the lowest cost first, building up to the more expensive measures later.
7) Time conservation investment opportunities to take advantage of water rate increases when customers will be more motivated to reduce their water bill.
8) Recognize regional customer equities and the need to spread conservation opportunities between customer sectors as well as geographically and demographically.
9) Package conservation measures identified in the CPA into logical customer programs to reduce delivery and marketing costs, and to maximize customer participation opportunities.
10) Increase customer participation levels. Obtaining customer participation rates shown on the implementation table will be very challenging. This level of customer participation is pushing the envelope of what other utilities have been able to achieve. In the last years of the program (2007-2010), much greater emphasis may need to be placed on increasing customer participation, particularly in the area of changing customer behaviors.

A detailed estimate of costs for and water savings from implementing the 1% Program as envisioned by this plan for each year between 2001 and 2010 is shown in Exhibit 7. The actual investment and resulting savings may vary depending on the budget adopted each biennium. The dollars shown in the table are in thousands of 2001 dollars, and some totals may not exactly match due to rounding. The water savings are shown in thousands of gallons per day. In addition, the participation rates reflect the percent participation expected to be achieved within the eligible customer accounts in order to meet the program savings goals in the different customer sectors.

Exhibit 7: Water Saving Partnership (1% Program) Implementation Schedule and Funding- Working Draft (shaded areas denoting program emphasis)

(Dollars noted are in thousands; water savings are noted in thousands of gallons per day)

	"Ramp Up" 2-Year Total	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% Customer Participation
Residential Landscape												**40%**
Naturals theme, specific behavior messaging	425	180	300	300	300	300	300	350	400	450	3,305	
Product (Hardware) Design and Selection	50	100	700	200	100	100	100			-	1,350	
Hardware Device Incentives (new programs)	125	100	100	700	800	1,000	1,000	1,000	1,000	1,000	6,825	
Umbrella, general behavior, partnerships, evaluation	530	200	200	200	200	200	200	200	200	200	2,330	
Residential Landscape Total $'s	**$1,130**	**$580**	**$1,300**	**$1,400**	**$1,400**	**$1,600**	**$1,600**	**$1,550**	**$1,600**	**$1,650**	**$13,810**	
Residential Landscape Water Savings	400	100	320	350	350	380	380	380	380	380	3,420	
Residential Domestic												**90%**
Multi-family toilets	15	1,000	1,000	900	300	200	100	100	100	100	3,815	
Single family toilets	390	150	200	200	300	300	1,350	1,450	1,550	1,650	7,540	
Flappers		-	100	300	600	400	100				1,500	
Washwise laundry	1,241	450	800	600	700	800	200				4,791	
Behavior, youth education, partnerships, marketing, evaluation**	650	120	300	300	400	400	400	600	700	800	4,670	
Residential Domestic Total $'s	**$2,296**	**$1,720**	**$2,400**	**$2,300**	**$2,300**	**$2,100**	**$2,150**	**$2,150**	**$2,350**	**$2,550**	**$22,316**	
Residential Domestic Water Savings	1,150	610	950	900	900	860	770	770	780	780	8,470	
Commercial Landscape												**50%**
Landscape Audits and Incentives, New Codes	370	200	200	200	200	200	200	300	400	450	2,720	
Specific Commercial Marketing & Behavior, Evaluation**												
Commercial Domestic												
Restroom Upgrades	175	50	200	200	200	200	300	400	400	300	2,425	
Specific Commercial Marketing & Behavior, Evaluation**	50	25	25	25	25	25	25	25	25	250		
Commercial Process												
Cooling, Process and Other Incentives	1,850	1,000	800	800	800	1,000	1,200	1,300	1,400	1,600	11,750	
Specific Commercial Marketing & Behavior, Evaluation**	240	200	50	50	50	50	50	50	50	50	840	
Commercial Total $'s	**$2,635**	**$1,600**	**$1,300**	**$1,300**	**$1,300**	**$1,500**	**$1,800**	**$2,100**	**$2,300**	**$2,450**	**$18,285**	
Commercial Total Water Savings	1,250	410	380	380	380	380	380	610	700	730	5,710	
TOTAL PROGRAM $'s	**$6,061**	**$3,900**	**$5,000**	**$5,000**	**$5,000**	**$5,200**	**$5,550**	**$5,800**	**$6,250**	**$6,650**	**$54,411**	
TOTAL PROGRAM Water Savings	2,800	1,120	1,730	1,710	1,710	1,660	1,730	1,790	1,890	1,950	18,090	

* Savings are based upon Conservation Potential Assessment estimates - assumes O&M budget at CPA required levels for savings to be achieved.

** CPA development and program evaluation are included in evaluation items.

III.D. Implementation of Other Conservation Commitments

The other conservation commitments contained in the resolutions and ordinances described in Section II have goals that are either linked to or expand on the 1% Program. Consequently, implementation of some of these commitments are within the scope of the 1% Program. Some of them entail further effort. This section describes how these other commitments will be met.

III.D.1. Habitat Conservation Plan

The 1% Program budget contains funds for overall marketing. Some of those funds will be used to promote the value of conserving to help the environment. This covers the commitment made in the HCP.

III.D.2. TSSP Resolution and Memorandum Of Agreement

As the ramifications of changes to the TSSP agreement partnership unfold, SPU's approach to the commitments in both the MOA and Resolution will likely change. The following discussion describes activities SPU anticipates leading in relation to the commitments made.

The TSSP Resolution directs SPU to examine conservation alternatives that go beyond the cost–effective definition in the CPA. Efforts were underway to meet this commitment when the I-63 Settlement Ordinance was passed by City Council. That ordinance commits SPU to conserve an additional 3 mgd by 2010. Implementation of that ordinance will essentially accomplish the results intended by this requirement in the TSSP Resolution.

SPU is directed to work with Tacoma and the other TSSP partners to develop a plan for meeting an aggregate 10% conservation commitment. If this were to be implemented, it would not likely change what SPU is doing in its 1% Program, except possibly the timing or intensity of implementation activities based on partnering opportunities that might develop. Since the TSSP participation has changed, the basic precept of the commitments made in the MOA no longer apply. SPU is working with the Department of Ecology to determine what responsibility remains for fulfillment of the agreement.

The Conservation Entity called for in the TSSP Resolution is in the formative development stage. SPU is working with other regional leaders and stakeholders to define the Entity's mission, objectives and scope of responsibilities. The Entity is anticipated to be established by the end of 2002, although its role will evolve over time.

In addition to these efforts, SPU has negotiated new wholesale customer contracts that contain a commitment to participate in SPU's 1% Program. The first of these contracts were signed in May of 2001. As negotiations with other wholesale customers continue over the next few years, staff will continue to seek the same commitments for conservation.

III.D.3. I-63 Settlement Ordinance

The plan for obtaining the additional 3 mgd of water conservation in SPU's retail service area by 2010 will be developed by March 2003. It will likely include system efficiency savings and the additional increment of savings from implementing the low income housing component of I-63 SO.

An implementation plan has been prepared specifically for the low-income housing program. It outlines a strategy for achieving desired savings, although it will evolve as opportunities arise and more is learned about the constraints and costs of implementing such a program. Initially, large public housing providers will be targeted. The primary focus will be given to the installation of toilets, showerheads, and faucet aerators. In addition, extremely low-income and very low-income single-family households, as defined in the ordinance, will also be served during the first phase of the low-income

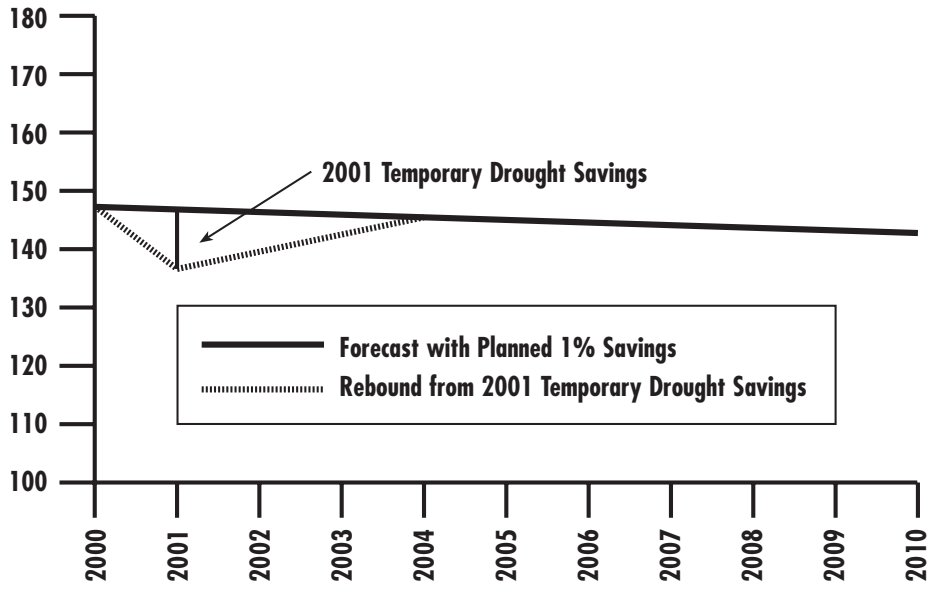
housing conservation program. Efforts in the later years will focus on smaller housing providers, and larger housing providers not yet participating in the program. Conservation retrofits will include toilets, showerheads, faucet aerators, irrigation systems and washing machines.

III.E. 2001 Drought Impact on Conservation Commitments

The winter of 2001 turned out to be the driest in 70 years. A statewide drought was declared and SPU asked customers throughout its regional service area to voluntarily curtail water use by 10% during the spring and summer months. Customers responded enthusiastically, generating a dramatic one-year decline in water use. Savings in 2001 are estimated to be 10 mgd. Of those savings, 5 mgd are short-term transitory drought savings, 2 mgd are savings from ongoing price and code affects that were expected for 2001, 2 mgd are from new long-term programmatic savings, and 1 mgd is from extra, one-time system water savings.

Following the 1992 drought, water consumption steadily rebounded until the transitory savings disappeared and demand resumed its long-term downward trend. This was successfully accomplished by continuing investments in long-lived hardware, fixture and technology programs and behavior maintenance programs. Exhibit 8 shows that demand from 2001 will gradually rebound from the temporary savings that were associated with customers' response to the 2001 drought. SPU expects that these temporary savings will disappear by 2004, similar to the experience following the 1992 drought.

Exhibit 8: Rebound in Water Demand from 2001 Drought



This rebound could be faster without the planned conservation efforts.

III.F. Revenue and Rate Impacts

The demand reduction resulting from planned, long-term conservation programs is built into the demand forecast. Conservation savings are thereby factored into the revenue requirements of the utility and addressed during the rate setting process. Unanticipated reductions from drought occurrences or other emergency curtailment of water use, however, may cause temporary declines in revenue that have not been factored into revenue requirements.

IV. PLAN EVALUATION AND UPDATES

Since SPU's first conservation efforts over twenty years ago, there have been significant changes and additions to conservation measures and methods. Changes in available technology have made it possible to secure reliable demand reductions by changing out old water using fixtures with newer, more efficient ones. Building codes have changed, requiring water efficient hardware or providing landscape guidelines that have increased water efficiency. Some programs became cost-efficient because multiple benefits with electric or drainage and wastewater programs lowered SPU costs for implementation.

Other opportunities in the future will likely stimulate changes in the types of measures that should be implemented. Water reuse, which has benefits for wastewater treatment, stormwater management, and aquatic habitat protection as well as water supply, may prove to be one such opportunity. These changes will be considered during evaluation and refinement of conservation measure implementation over the planning horizon.

There are some key milestones at which the program will be evaluated and refined based on SPU's commitments and WSP requirements. They include annual reporting, update of the CPA and the Water System Plan update. The commitments are described in the sections below and shown in Exhibit 9. The evaluation and report schedule is shown in Exhibit 10.

Exhibit 9: Evaluation Commitments

Commitment	Source
CPA every 5 years, beginning in 2003	TSSP Resolution
Evaluate progress every two years	TSSP Resolution MOA
CPA every 4 years, beginning in 2004	Conservation Ordinance
Annual Tracking	Conservation Ordinance
Conservation Plan Update every 6 years	Water System Plan Update

Exhibit 10: Evaluation and Report Schedule

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mile-stone	Annual Report	Annual Report	Annual Report -CPA Update	-Annual Report	Annual Report	-Annual Report -WSP Update	-Annual Report -CPA Update	-Annual Report	Annual Report

IV.A. Annual Evaluation and Reporting

Evaluation is essential to measuring the success of the 1% Program and its component parts. Evaluation will track implementation progress, help direct resource allocation, and identify needed program refinements. An important component of overall program evaluation will be ongoing customer research to gauge the attitudes and preferences of our customers in order to encourage the greatest participation at the least cost. Through the annual evaluation, it will also be possible to track participation rates and other assumptions to determine what program refinements are necessary to achieve the 2010 savings goal.

The first annual report on the progress of 1% Program implementation was completed in May 2002. The report includes the status and results of overall and individual program implementation. Data has been presented on current and cumulative savings toward achievement of the 2010 goal, including savings achieved in 2001. The annual report fulfills SPU's reporting commitments made in the TSSP Resolution & MOA, and I-63 SO.

IV.B. Conservation Potential Assessment Update

The CPA will be updated periodically to re-analyze existing conservation measures and analyze new potential conservation measures to determine their cost and savings. It will also review participation rates and assumptions about implementation costs for different conservation measures so that strategies can be reviewed and revised appropriately. This will provide data for revising the Conservation Plan to reflect changes in technology and information. To meet the commitment in the I-63 SO, the next CPA update will be in 2004 and every four years thereafter.

IV.C. Water System Plan Update

A conservation plan is one of the required elements of a Water System Plan (WSP). The WSP sets overall direction for how conservation fits into the water supply and demand picture. In doing so, information from the CPA update is considered. If there were no change in policy direction in the next WSP Update, then the WSP would reference this Conservation Program Plan. Likewise, this program plan would be updated according to any changes in direction set in the WSP. The next WSP update is due to DOH in 2007.